

I. STEADY TRICKLE

5. Hydrogen and oxygen atoms escape to space, removing water and drying the climate over time.

4. Ions in the upper atmosphere, like CO_2^+ , break apart H_2 into atomic hydrogen.

3. Water molecules are trapped at a cold layer called the hygropause. H_2 and O_2 continue to rise.

2. Water evaporates, rises, and is broken into H_2 and O_2 .

1. Heat from the Sun warms the surface and atmosphere of Mars.

Hydrogen - ●
Oxygen - ●
Carbon - ●
Chemical Reaction - ✨

HYGROPAUSE 40 - 50 KM

II. SUDDEN SPLASH

5. Hydrogen and oxygen escape to space at higher rates during dust storms, removing water more quickly.

4. Ions in the upper atmosphere, like CO_2^+ , break apart the water molecules.

3. Due to the increased heating, water molecules rise higher into the atmosphere.

2. When dust storms occur,* they heat the atmosphere, injecting it with a surge of additional water molecules.

1. Heat from the Sun warms the surface and atmosphere of Mars, evaporating water.

HYGROPAUSE (WEAK) 60-70 KM

*Seasonal dust storms occur in the southern hemisphere each Mars year, when Mars is closest to the Sun. Global dust storms occur about once every ten Earth years.